MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

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DATE: January 29, 2018

SUBJECT: Review of Utility Worker Preliminary Remediation Goal for PCBs in Utility Corridor Soil at Ten Mile Drain

This communication is in response to your request for a review of the utility worker preliminary remediation goal (PRG) for Ten Mile Drain (TMD). The basis for the PRG can be found in the Technical Memorandum (Preliminary Remediation Goal for PCBs in Utility Corridor Soil – Ten-Mile Drain Superfund Site, St. Clair Shores, Macomb County, Michigan; July 11, 2017) and the supporting Human Health Risk Assessment (Human Health Risk Assessment Ten-Mile Drain Superfund Site, St. Clair Shores, Macomb County, Michigan February 2016) both prepared by **ch2m** for United States Environmental Protection Agency (EPA). At the time of your request, the PRGs were presented as a range and the final PRG had not yet been selected. Since that time, EPA has selected the final PRG of 21 ppm for this scenario.

The utility worker PRG, based on a cancer risk of 1E-06 (one in one million), was selected by EPA because it protects for both cancer and noncancer risks. The PRG of 61 ppm is based on noncancer effects and a hazard quotient of 1. The PRG based on a cancer risk of 1E-05 (one in 100,000) is 215 ppm. Selection of 215 ppm would not protect for noncancer effects (i.e., it is higher than the noncancer PRG of 61 ppm); as a result, the PRG associated with a 1E-06 cancer risk level was selected. See Table 2 of the Technical Memorandum.

For site-specific criteria, the MDEQ requires a demonstration that the best available information is used in the development of the criteria in accordance with the NREPA Part 201 statutory requirement (20120b) shown below:

> *324.20120b Numeric or nonnumeric site-specific criteria.*
> *(1) The department shall approve numeric or nonnumeric site-specific criteria in a response activity under section 20120a if such criteria, in comparison to generic criteria, better reflect best available information concerning the toxicity or exposure risk posed by the hazardous substance or other factors.*

Based on the above requirement, exposure assumptions and other parameters used to generate the site-specific criterion must be based on best available information both in terms of scientific information and representing site conditions and exposures. The rationale identifying a parameter as best available and representative of site conditions must be provided. Rationale has not been provided in the aforementioned documents to support the validity of the assumptions used to develop the PRG. Some of the significant exposure assumptions worth mentioning are exposure frequency, exposure duration, and the Particulate Emission Factor (PEF). The exposure frequency of 20 days/year and the exposure duration of five years are based on professional judgment as indicated in Table 1 of the Technical Memorandum. Although the use of professional judgment is indicated, further details must be provided to explain the rationale and basis for the judgment used to derive these exposure assumptions. The PEF is a parameter within the inhalation component of EPA's soil contact pathway and DEQ's Particulate Soil Inhalation (PSI) pathway which accounts for emissions of particulates from soil as a result of wind erosion. Subsequent dispersion after the particulates become airborne is represented by the Q/C parameter which is the dispersion factor and a component of the PEF. The generic particulate soil inhalation criteria in the proposed rules use updated exposure assumptions including the Q/C which is based on Michigan-specific meteorological data. **ch2m** did not use Michigan-specific meteorological data in the derivationof the PRG. Justification must be provided as to why the regional-specific meteorological data they used best represents site conditions at TMD.

The above comments are consistent with what would typically be required for approval of site-specific criteria from the Toxicology Unit. During discussions with Superfund staff, it was noted that TMD is an EPA lead Superfund site. As such, it was agreed that the focus for this review can be more general and can include comparisons to the DEQ proposed generic nonresidential criterion which the department believes is based on the best science. The generic nonresidential receptor represents a worker whose exposures are more frequent and of longer duration.

The utility worker PRG is based on a cancer risk of 1E-06 and addresses direct contact with soil which EPA defines for PCBs as a combination of ingestion, dermal, and particulate inhalation exposures. The DEQ proposed generic nonresidential soil direct contact criterion (which addresses ingestion and dermal exposures only) is 20 ppm. The DEQ proposed criteria for carcinogens are all based on a cancer risk of 1E-05 as dictated by statute. If the particulate soil inhalation component is combined with the ingestion and dermal components of the soil direct contact criterion, the resulting risk-based value is still 20 ppm. (This is because the inhalation component contributes minimally to the overall risk compared to the ingestion and dermal components.) The DEQ proposed nonresidential soil direct contact criterion of 20 ppm is comparable to the EPA selected utility worker PRG of 21 ppm. These two values are different in terms of parameter values and target risk levels however, if the DEQ criterion was adjusted for the utility worker, it would likely be a higher value due to some exposure assumptions decreasing in value. For these reasons, I am concluding that the EPA PRG is adequately protective for the utility corridors at TMD.

Let me know if you have questions.

cc: David Kline, DEQ
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